DOCUMENT RESUME

ED 212 175 FL 012 782

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TITLE Verb Nominalization and Categorization in Navajo Children's Speech.
PUB DATE Oct 81
NOTE 15p.; Paper presented at the Annual Boston University Conference on Language Development (6th, Boston, MA, October 9-11, 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS American Indians; *Child Language; Children; Language Research; *Navajo; *Nouns; Psycholinguistics; Verbs

ABSTRACT

Verb nominalization in Navajo is a strategy by which children create category labels when the adult lexical item is not known; it allows for the creation of uniquely descriptive category labels. This study was based on a series of interviews with Navajo children aged four-and-a-half to approximately ten years, all native speakers of Navajo with limited fluency in English. The interviews were conducted in an open-ended fashion focusing on the domain of animals. The findings indicate that younger children use nominalized verbs as a means of creating category labels out of known lexical items but without any attempt to reproduce those found in adult speech. Instead, the children's categories are more descriptive in nature without reference to hierarchic or taxonomic categories. The implications of the research lead to a new perspective on the ways in which children think about the universe and integrate their knowledge into developing cognitive models. (Author)

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VERB NOMINALIZATION AND CATEGORIZATION IN NAVAJO CHILDREN'S SPEECH[1]

In recent years it has been generally acknowledged that children's lexicons, and cognitive models in general, are not merely incomplete versions of some adult structure, but rather reflect some essential differences in world view. Studies of the lexicon provide us with at least two types of information: first, we can determine points of difference and similarity between the cognitive models of the children and adults, and at the same time, we can examine the internal structure of the children's cognitive models by comparing the principles of organization used to those invoked by adults.

In studies of the lexicon, one particularly rewarding area of investigation is the use of lexical innovations in children's speech. As Clark notes, the purpose of lexical innovations is to fill lexical gaps. By means of this creative process the child is able to "...supply a meaning not otherwise expressed by any lexical items available to the speaker..." In this paper I would like to investigate a particular type of innovative device used by Navajo children, the nominalizing enclitic igii.[2] My purpose is to describe how it functions as a category-naming strategy.

The Navajo Language

The Navajo language is a verb final language of the Athabascan family with the syntactic order Subject-Object-Verb. It is also a verb prominent language, in that the verb stem, with its approximately thirteen prefixes,

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is potentially a sentence in itself (Elgin 1973). The highly productive nature of the verb has led Young and Morgan to conclude that in fact almost all Navajo nouns are actually derived from the verb, by the addition of a nominalizing suffix. Elgin, in her dissertation, also suggests that most Navajo nouns are in fact nominalized verbs. She writes, "The Navajo speaker, faced with naming an item new to his culture, will produce not a new basic stem but a nominalized verbal form" (1973).

The nominalizing enclitic igii is used to particularize the meaning of the verb, and is usually translated as that one, or the kind that. Thus, from to liquid + likani sweet + halchin it smells, we get to likani halchinigii, the kind of liquid that smells sweet, or more specifically, perfume.

Elgin stresses that in this nominalizing process the result is a new lexical item, and not just an embedded sentence or phrase. This process is highly productive in Navajo, to the extent that many nominalized forms have lost their verbal connotations and are now undifferentiated from the non-nominalized nouns. But the enclitic igii remains an extremely common conversational device in adult speech, used to create new forms on an ad hoc basis. In fact, it is often one of the first Navajo elements to be isolated by the untrained ear. By frequency of occurrence alone, its usage by children as a device for lexical innovation needs to be examined; in particular, its use as a strategy for creating lexical labels for underlying cognitive categories.

The process of categorization is one aspect of the larger domain of cognitive development. The relationship between conceptualization and categorization has been explored by various authors, notably Anglin (1977) and Nelson (1978). Both focus on the link between vocabulary growth and

cognitive development. Anglin emphasizes the direction of growth as revealed by the acquisition of lexical items, and the underlying expansion of the conceptual system, in the form of increased differentiation and hierarchic integration of phenomena in the physical world.

Nelson, in her review article, "Semantic Development and the Development of Semantic Memory" (1978), also investigates the linkage between lexical knowledge and conceptual growth, differentiating between two levels of knowledge: she states, "What the child learns about the world we can assume to exist at a 'conceptual level'. What he learns about the meaning of words we can specify as a 'lexical level'. The lexical level is a component of the more general 'semantic level'..." (p. 43). Later in the article, she investigates the form or structure of children's knowledge at the conceptual level by examining the characteristics of the child's lexical knowledge.

One important finding of both Anglin's work, and Nelson's, is that strategies of categorization play an important role in understanding the organization of children's knowledge systems. In this paper I would like to explore this conclusion further, looking at evidence from Navajo children's knowledge of the domain of animals; in particular, their use of the morphological device, the nominalizing or relatival enclitic igii, as a strategy for creating lexical labels reflecting underlying conceptual categories.

The perspective here is that of the cognitive anthropologist, particularly an ethnoscientist. To quote Sturtevant, "Ethnoscience refers to the system of knowledge and cognition typical of a given culture" (1974). This entails the "sum of a society's folk classifications...its particular ways of classifying its material and social universe."

The acquisition and developmental aspects of a society's ethnoscience are the prime areas of inquiry here, with an emphasis on the ways in which children do or do not classify in accordance with the adult model. An important premise is that Navajo children are in the process of becoming Navajo adults. From an ethnoscience point of view, this means they are in the process of acquiring a uniquely Navajo world view. A representation of this world view can be derived by looking at the culturally significant categories children label as they describe the material and social universe. These labelled categories encode a conceptual framework akin to Nelson's "conceptual level" of knowledge.

The Data

The data to be described below were collected during two months of fieldwork on the Navajo Indian Reservation. The methodology used was a series of open-ended ethnographic interviews. This method incorporates a sequence of directed questions into the interview protocol allowing for both open-ended and focused questioning. The result is a series of texts ranging from single utterance responses to long strings with a unitary focus. These texts, often conversational in style, yield a volume of data particularly amenable to the analysis of natural speech.

Seven children were interviewed, ranging in age from four to ten years. The youngest four were pre-schoolers, and almost totally monolingual Navajo speakers. The three older children, all girls, though in school remained predominantly Navajo speakers.

Each child was interviewed in Navajo by a co-researcher in a "naturalistic setting" at his or her own home. As an aid to the interview process, small plastic toy animals were used to stimulate the children's play, as well as a series of picture cards of animals, used in card-sorting

tasks designed to create labelled categories. All interviews were taped.

The use of the open-ended interview, carried out in essentially a "play" situation, allowed for the collection of a large body of utterances in which as little direction as possible was given to the children's discussions. The intent was to avoid "predetermining" or "predisposing" the child toward researcher-induced categories. Thus the data are thought to reflect more truly the children's real knowledge versus a restatement of, or agreement with, the adult's version.

The Analysis

I begin the analysis by comparing the model of the domain of animals as described by the children to the conceptual structure of the same, or greatly overlapping, adult domain presented in a study of Navajo taxonomies by Werner, Manning and Begishe (1980). The handout labelled "Partial Taxonomy" presents some of the major branches of the domain, titled Nanise' live things.

The adult model presents a structure which utilizes the taxonomic link as the organizing principle. In studies of lexical/semantic relations, taxonomy is considered the most important relation, occupying a central position (Evens et al. 1980). The taxonomic relation links items in the lexicon via the proposition "A is a kind of B". The superordinate nodes label classes or categories of objects or animals which include the subordinate nodes that fall below them. Levels of specificity move downward from the most general, or most superordinate, to the most specific, or subordinate.

The taxonomic relation is the same structural link Anglin originally hypothesized as the organizing principle of children's lexicons in The

Growth of Meaning (1970). However, my findings, and those in Anglin's later works (1977) and in Nelson (1978) have shown that, in fact, the taxonomic principle is probably not the primary unifying structure of the child's lexicon.

In fact, there is very little evidence of an overt taxonomic link in the folk definitions collected from my consultants. By overt, I mean a straightforward statement "A is a kind of B" or "A is a B". Only two children (aged seven and ten) clearly use taxonomic frames in their definitions and the occurrence of this semantic relation is rather limited. One child tells us,

> Tsidi na'ashjaa' ei tsidii at'e
> owl is a bird.

Another names the picture card of the rabbit, saying,

> Rabbit eiya dabilii
> Rabbit is a pet.

These are the only instances in which specific reference to a higher level taxon is used as a defining characteristic of an animal. However, only the label tsidi bird coincides with a similarly named category in the adult's taxonomy. (See handout.)

Delia Benally, aged five, was the only younger child to even approximate the use of a taxonomic relation as a defining feature. When presented with the picture card of the ants, Delia responded,

> Eii ei ch'osh
> That's a bug.

However, this is not a clearcut example of a taxonomic statement, since her use of the work ch'osh is ambiguous in its reference; that is, it can be used to describe a variety of insects, either as a class name or as a specific label. In addition, Delia uses it to name the picture card of the snake.

Quasi-Taxonomic Categories

Despite this lack of specific use of the taxonomic frame, most of the children made "quasi-taxonomic" statements throughout their interviews. A "quasi-taxonomic" category is one in which the verb form is nominalized to create a label for the category. This is done by adding the relatival enclitic igii to the verb. The nominalization process appears to be an important strategy used by Navajo children when they do attempt to name higher-level categories.

The best example of this process is found in Delia Benally's interviews. She tells us,

> Eii ei bees at'e...naat'd'igii
> This bee is the one that flies.

Here the verb naat'a' it flies is transformed into the nominalized form naat'a'igii the one that flies. This same form is also used in her definition of k'aalogii butterfly. She says,

> Eii ndaat'a'igii at'e
> Those are the ones that fly.

Thus, it is possible to posit a higher level taxon ndaat'aigii ones that fly and include as subordinate nodes both bees and butterflies. This category would then coincide with that found in the adult model, naat'a'ii flying things.

Another category formed by the use of the enclitic igii is the category "Things that Live (or swim) in the Water" which is similar to the adult label "Tahtl'aah hinaanii" things that live under the water.

Edwin Johnson (aged four) and Delia Benally both describe various animals with reference to this category. Delia describes the fish, saying,

> Tayi' di ndaaghahigii at'e, loo' at'e
> It is a fish that lives in the water,

or more literally, It is the one that goes in the water, it is a fish.

Edwin uses a similar construct when naming the picture card of the duck:

> Tsidii eii to yii' ndaa'eeligii
> The bird that swims in the water.

Evidence for the category rests on the use of the terms to yii' and tayidi, both of which translate as in the water. Thus, the label "Things that live in the water" is not as definite a category name here, compared to the specificity of naat'a'igii.

If we interpret the enclitic igii as a device used to label innovative categories, the frequency of reference to higher-level taxa in the children's definitions increases. Examples of categories or quasi-categories formed by the use of igii are found in Delia's interviews and those with David and Harvey Kendall, aged four and five respectively. In these examples, the categories were derived in the process of card-sorting and tend to be unique for each child. Delia sorts the picture cards of the women together and then says,

> Asdzaa...da'atl'ohigii adaat'i
> Women are the ones that weave.

David Kendall describes the cat picture:

> Atsi' deiiyahigii, atsi' baahigii
> The meat eater, they eat the meat on it.

These categories are not coincident with those used by adults in their descriptions of the domain of animals. If the use of igii were solely to enable children to approximate the adult categories without specifically using adult labels, then we would expect to find a category similar in intent to David's "meat-eaters" or Delia's "weavers" in the adult taxonomies. But this is not the case. Thus, while there is some evidence that igii may be used to fill in lexical gaps and approximate adult labels, this is not its sole function.

What we do find, instead, is that igii serves as a device for creating category labels reflecting a unique world view, organized in accordance with non-taxonomic principles. Although I refer to labels using the igii enclitic as "quasi-taxonomic" in nature, the underlying principle of the category is not one of super- to sub-ordination, or hierarchy. Instead, we see attributes such as location, or action used; as in naa'a'igii... the one that flies, or to yii' ndaa'eelhigii, the one that swims in the water. Though these labels can be used to name grouped items, the label refers to a common attibute rather than a higher-level conceptual category, such as nanise' live things.

The discussion above indicates that children's categories are not necessarily concident with those of adults, nor do the types of categories children construct reflect an adult view of the world. It is evident that the child's conceptual model of the universe, his or her world view, differs from that of the adult in at least one significant way: its organizing structure and the concomitant principles or lexical/semantic links drawn between items. The adult model is fully explanatory using the taxonomic formula. But this formula is not the principal link between items in the child's lexicon. Thus we find yet further evidence that children are not "incomplete" adults. They are instead individuals who view the world, and talk about it, in quite distinctive fashions.

Interestingly, the relatival enclitic igii appears to function as a nominalizing device only in the speech of the younger children I interviewed, which suggests its role as a device for lexical innovation and implies some disjuncture in the organization of cognitive models between pre-school and school-age children. However, the data are not so clearcut that a firm conclusion can be drawn. For example, though there is no evidence of its usage in the interviews with the three older girls, it is also used only infrequently by one pre-school boy.

Thus, the igii enclitic could be interpreted as a developmental indicator of Navajo children's attempts to categorize by taxonomic principles without knowledge of the higher level taxa found in the adult model, or it could simply be idiosyncratic, or perhaps even familial in its use. One can only speculate on this, since the higher level taxa such as naaldlooshii trotting things or naat'a'ii flying things which label categories in the adult taxonomies are not found even in the interviews with the three older children. In order to reach a conclusion as to the significance of the use of igii as a device for filling lexical gaps, and the role of lexical innovation in the construction of uniquely child-oriented cognitive models, a great deal more investigation with a much larger sample of children is needed. Such an investigation would tell us much about the ways in which children verbalize their knowledge and organize it in their developing cognitive systems. With respect to language development, and word meaning in particular, the emergent models would provide new insights into the ways in which children think about the universe and integrate new knowledge into a coherent structure.

NOTES

1. This paper is based on my research published in Navajo Children's Lexical Development and the Acquisition of World View. Ph.D. Dissertation, Department of Anthropology, Northwestern University. 1981. It is available through University Microfilms.

2. The Navajo language is tonal. High tones are indicated by strikes above the vowel. In addition, nasalization of vowels is marked by the use of ('). The voiceless L is marked by a slash.

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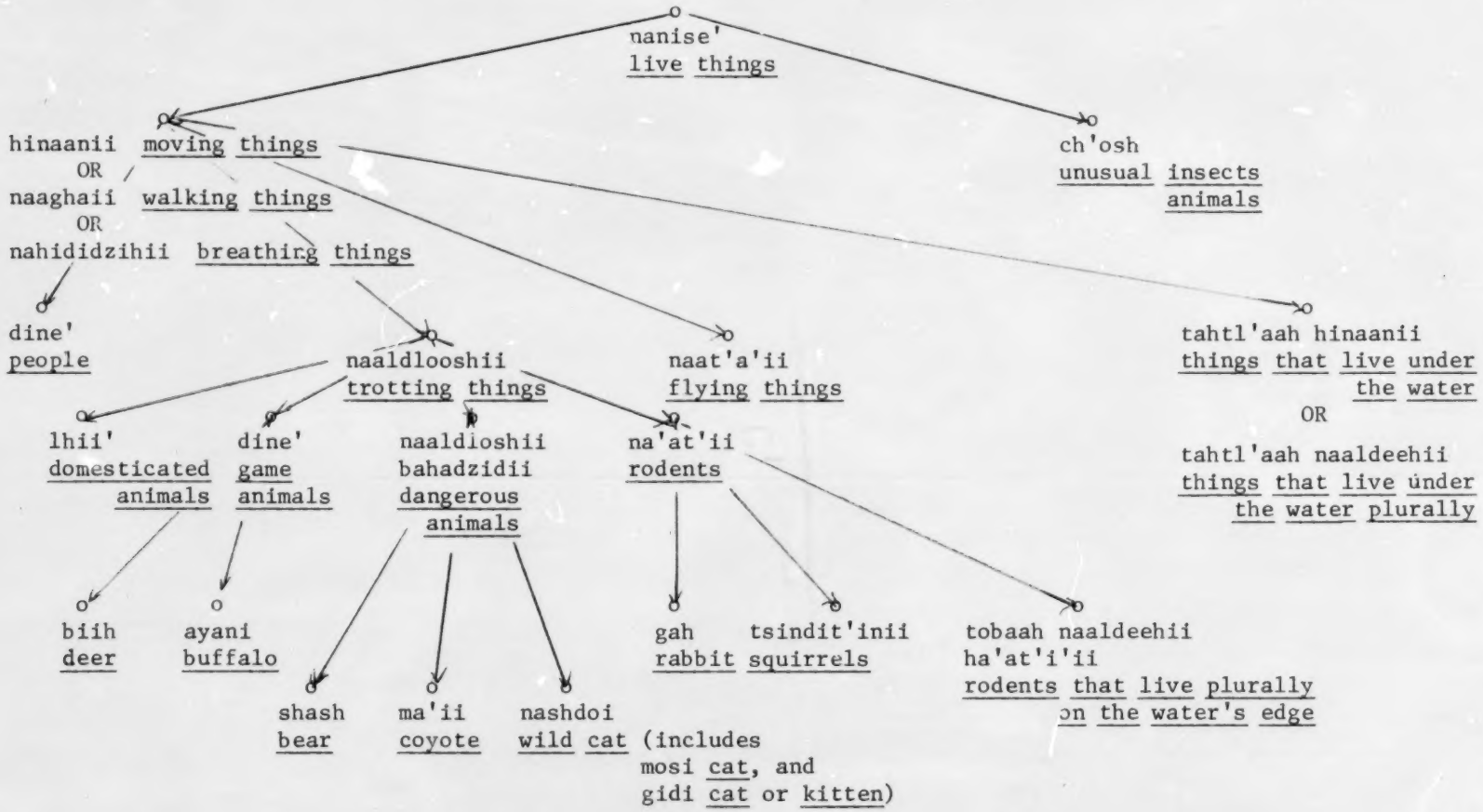
Partial Taxonomy of Relevant Branches of Nanise' *



*Extracted from "A Taxonomic Aspect of the Traditional Navajo Universe" by Oswald Werner, Allan Manning, and Kenneth Y. Begishe. ms.